

WHAT IS CLAIMED IS:

1. A method for aiding product life cycle planning, comprising:

5 setting product use period and longest part useful life of product;

determining product use period $\leq 0.5 \times$ longest part useful life; and

10 automatically proposing reuse of parts when product use period $\leq 0.5 \times$ longest part useful life is satisfied.

2. A method for aiding product life cycle planning, comprising:

15 generating information concerning worth degradability wherein worth deterioration of parts relates to discard of product and cost ratio of parts to a whole product; and

extracting, from the information, parts which is impossible to upgrade and has highest worth degradability as improvement object parts.

20 3. A method for aiding product life cycle planning, comprising:

generating information concerning use period and useful life of parts; and

25 extracting, from the information, parts which is impossible to upgrade and has shortest use period as improvement object parts.

4. A method for aiding product life cycle

planning, comprising:

generating information concerning use period and
useful life of parts; and

5 extracting, from the information, parts whose
maintenance replacement is impossible and whose useful
life is shortest as improvement object parts.

5. A method for aiding product life cycle
planning, comprising:

10 generating information concerning cost ratio of
parts to a whole product and environment load ratio;
and

extracting reuse candidate parts from the
information.

15 6. A method according to claim 5, comprising:
producing a two-dimensional graph wherein the cost
ratio and the environment load ratio are indicated by
axes, based on the information; and
dividing the graph into a plurality of domains,
and

20 said extracting step including extracting the
reuse candidate parts from at least one of the domains
in which parts are existed.

25 7. A method according to claim 5, comprising:
generating information concerning cost ratio of
parts to the whole product and environment load ratio;
producing a two-dimensional graph wherein the cost
ratio and the environment load ratio are indicated by

axes based on the information;

assigning each part to one of division domain
obtained by dividing the graph based on a given
threshold; and

5 extracting a reuse candidate part from a domain in
which parts are existed.

8. A method for aiding product life cycle
planning comprising:

generating information concerning a use period of
10 reuse source product i, a remaining useful life of
parts j to be included in the reuse source product,
a use period of reuse destination product i',
a production period of reuse source product i and a
production period of reuse destination product i': and

15 determining that parts is possible to reuse only
in the case where the remaining useful life of parts j
to be included in the reuse source product remains more
than the use period of reuse destination product i'
even if the use period of reuse source product i is
20 elapsed, and worth of parts j continues even if time
lag until production of reuse destination product i' is
started, the production period of reuse source product
i and the use period of reuse destination product i'
are considered, and the amount of recovery of reuse
25 source product i is enough within the production period
of reuse destination product i' based on the
information.

9. An apparatus for aiding product life cycle planning, comprising:

a setting device configured to set product use period and longest part useful life of product;

5 a determination section configured to determine product use period $\leq 0.5 \times$ longest part useful life; and

a proposing device configured to automatically propose reuse of parts when product use period $\leq 0.5 \times$ longest part useful life is satisfied.

10 10. An apparatus for aiding product life cycle planning, comprising:

a generator configured to generate information concerning worth degradability wherein worth deterioration of parts relates to discard of product and cost ratio of parts to a whole product; and

15 an extracting device configured to extract, from the information, parts which is impossible to upgrade and has highest worth degradability as improvement object parts.

20 11. An apparatus for aiding product life cycle planning, comprising:

a generator configured to generate information concerning use period and useful life of parts; and

25 an extracting device configured to extract, from the information, parts which is impossible to upgrade and has shortest use period as improvement object

parts.

12. An apparatus for aiding product life cycle planning, comprising:

5 a generator configured to generate information concerning use period and useful life of parts; and
an extracting device configured to extract, from the information, parts whose maintenance replacement is impossible and whose useful life is shortest as improvement object parts.

10 13. An apparatus for aiding product life cycle planning, comprising:

a generator configured to generate information concerning cost ratio of parts to a whole product and environment load ratio; and
15 an extraction device configured to extract reuse candidate parts from the information.

14. An apparatus according to claim 13, comprising:

20 a production device configured to produce a two-dimensional graph wherein the cost ratio and the environment load ratio are indicated by axes, based on the information; and

a dividing device configured to divide the graph into a plurality of domains, and
25 said extraction device extracting the reuse candidate parts from at least one of the domains in which parts are existed.

15. An apparatus according to claim 13,
comprising:

5 a generating device configured to generating
information concerning cost ratio of parts to the whole
product and environment load ratio;

a producing device configured to produce a
two-dimensional graph wherein the cost ratio and the
environment load ratio are indicated by axes based on
the information;

10 an assigning device configured to assign each part
to one of division domain obtained by dividing the
graph based on a given threshold, and

15 an extracting device configured to extract a reuse
candidate part from a domain in which parts are
existed.

16. An apparatus for aiding product life cycle
planning comprising:

20 a generator configured to generate information
concerning a use period of reuse source product i, a
remaining useful life of parts j to be included in the
reuse source product, a use period of reuse destination
product i', a production period of reuse source product
i and a production period of reuse destination product
i': and

25 means for determining that parts is possible to
reuse only in the case where the remaining useful life
of parts j to be included in the reuse source product

remains more than the use period of reuse destination product i' even if the use period of reuse source product i is elapsed, and worth of parts j continues even if time lag until production of reuse destination product i' is started, the production period of reuse source product i and the use period of reuse destination product i' are considered, and the amount of recovery of reuse source product i is enough within the production period of reuse destination product i' based on the information.

17. A program product for aiding product life cycle planning, comprising:

means for instructing a computer to prepare product use period and longest part useful life of product;

means for instructing the computer to determine product use period $\leq 0.5 \times$ longest part useful life; and

means for instructing the computer to propose parts reuse to the new product when product use period $\leq 0.5 \times$ longest part useful life is satisfied.

18. A program product for aiding product life cycle planning comprising:

means for instructing a computer to prepare information concerning cost ratio of parts to a whole product and environment load ratio;

means for instructing the computer to produce

a two dimensional graph wherein cost ratio of parts to the whole product and environment load ratio are indicated by axes based on this information;

5 means for instructing the computer to assign parts to division domains obtained by dividing the graph based on a predetermined threshold; and

means for instructing the computer to extract reuse candidate parts from at least one of the domains in which parts exists.

10 19. A program product for aiding product life cycle planning, comprising:

means for instructing a computer to generate information concerning a use period of reuse source product i, a remaining useful life of parts j to be included in the reuse source product, a use period of reuse destination product i', the production period of reuse source product i and a production period of reuse destination product i': and

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means for instructing the computer to determine that parts is possible to reuse only in the case where the remaining useful life of parts j to be included in the reuse source product remains more than the use period of reuse destination product i' even if the use period of reuse source product i is elapsed, and worth of parts j continues even if time lag until production of reuse destination product i' is started, the production period of reuse source product i and the use

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period of reuse destination product i' are considered, and the amount of recovery of reuse source product i is enough within the production period of reuse destination product i' based on the information.

5 20. A program product for aiding product life cycle planning according to claim 19, comprising means for instructing to set the product use period such that a remaining useful life of parts j to be included in
10 the reuse source product remains more than the use period of reuse destination product i' even if the use period of reuse source product i is elapsed.

21. A program product for aiding product life cycle planning comprising:

15 means for instructing a computer to prepare information concerning worth degradability wherein worth deterioration of parts relates to discard of product and cost ratio of parts to a whole product;

 means for instructing the computer to extract parts whose cost ratio exceeds threshold and whose
20 worth degradability is highest as improvement object parts; and

 means for instructing to propose inexpensive upgrade wherein cost ratio is not more than threshold about the improvement object parts.

25 22. A program product for aiding product life cycle planning comprising:

 means for instructing a computer to prepare

information concerning use period of parts and cost ratio of parts to a whole product;

means for instructing the computer to extract parts whose cost ratio exceeds threshold and whose use
5 period is shortest as improvement object parts; and

means for instructing to propose inexpensive upgrade wherein cost ratio is not more than threshold about the improvement object parts.

23. A program product for aiding product life
10 cycle planning comprising:

means for instructing a computer to prepare information concerning useful life of parts;

means for instructing the computer to extract parts whose maintenance replacement is impossible and
15 whose useful life is shortest as improvement object parts; and

means for instructing the computer to propose maintenance about the improvement object parts.

24. A program product for aiding product life
20 cycle planning comprising:

means for instructing a computer to prepare information concerning use period and useful life of parts;

means for instructing the computer to extract parts whose cost ratio exceeds threshold and whose
25 useful life is shortest as improvement object parts; and

means for instructing the computer to propose inexpensive maintenance wherein cost ratio is not more than threshold about the improvement object parts.

25. A program product for aiding product life cycle planning comprising:

means for instructing a computer to prepare information concerning degradation and abrasiveness of parts and cost ratio of parts to the whole product;

means for instructing the computer to extract parts whose cost ratio exceeds threshold and whose degradation and abrasiveness are largest as improvement object parts; and

means for instructing the computer to propose inexpensive maintenance wherein cost ratio is not more than threshold about the improvement object parts.